

PATENT COOPERATION TREATY

Rec'd PCT/PTO 23 SEP 2004

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

SEPPO LAINE OY
Itämerenkätku 3 B
FIN-00180 Helsinki
FINLANDE

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

23.07.2004

Applicant's or agent's file reference
IFC 3 PCT

IMPORTANT NOTIFICATION

International application No.
PCT/FI 03/00229

International filing date (day/month/year)
25.03.2003

Priority date (day/month/year)
25.03.2002

Applicant
TIMSON OY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Fernández Gomez, L

Tel. +49 89 2399-7449



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D PCT/PTO 23 SEP 2004



Applicant's or agent's file reference IFC 3 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/FI 03/00229	International filing date (day/month/year) 25.03.2003	Priority date (day/month/year) 25.03.2002
International Patent Classification (IPC) or both national classification and IPC D21H21/54		<div style="border: 1px solid black; padding: 5px; text-align: center;"> RECEIVED 26 JUL 2004 WIPO PCT </div>
Applicant TIMSON OY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 15.09.2003	Date of completion of this report 23.07.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Nestby, K Telephone No. +49 89 2399-8625 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/FI 03/00229**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-12 as originally filed

Claims, Numbers

1-24 filed with telefax on 21.05.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/FI 03/00229**

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

see separate sheet

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-24
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/FI 03/00229

Re Item I

Basis of the report

1. In claims 1, 14, 21 the upper borderline of the range describing the amount of filler has been amended to read 60%; basis for the amendment is found in the last paragraph on page 8 of the description.
However, the originally disclosed word "nearly" in line 30 on page 8 indicates that the amount of granulated filler is "almost" 60% or "approximately but rather less" than 60%, see page 959 of the enclosed Chambers English Dictionary.
Therefore, the last feature of claims 1, 14, 21 should read "the amount of filler used is (from) 3 to **less than** 60% of the amount of solids".
- 1.1 Optionally, original claim 17 could have been used as basis for the amendment.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2. Reference is made to the following documents:

D1 : WO-A-01/79606
D2 : US-A-5 248 556
D3 : GB-A-1 271 463
D4 : US-A-3 129 134

The document D1 was not cited in the international search report.

3. D1 discloses, see in particular claims 27 to 37 and the description starting from line 25 on page 6, pigments in granule form having a rotationally symmetrical shape and an inner part and a crust part whereby the density of the inner part is about 10 to 90% of that of the crust part (see the last paragraph on page 11).

According to page 1 of D1, see lines 20 to 23 "the granular structure can be used as a filler of a fibrous web".

- 3.1 D1 is not mentioned in the description of the present application (Rule 5.1(a)(ii) PCT).

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/FI 03/00229

- 3.2 The only feature of claims 1, 14, 21 which is not explicitly disclosed in D1 is the amount of filler used (in the fibrous web) which is from 3 to less than 60% (see the foregoing item I) of the amount of solids. The expression "solids" should be interpreted as the combined weight of fibres and additives (including fillers) - see page 6, lines 14-16.

Although claims 1, 14, 21 are drafted in the two-part form the features "the density of the inner part is about 10 to 90% of that of the crust part" is incorrectly placed in the characterising portion, as it is disclosed in document D1 in combination with the features placed in the preamble (Rule 6.3(b) PCT).

- 3.3 The first feature of the characterizing part of claims 2 is a mere repetition of the same feature of claim 1 (Art. 6 PCT).

- 3.4 Although the subject-matter of all claims is novel, nevertheless, the use of the granular filler as described in claims 1, 14, 21 in fibrous webs is known from D1. Although the advantages of using said granular filler in fibrous webs are not explicitly mentioned in D1, they are inherent in the filler. Besides, there is no prejudice against using it in amounts say up to 60% even if this should be unconventional as alleged by the Applicant.

In any case, use of fillers in papermaking in the lower part of the claimed range of from 3 to less than 60% is **conventional** and hence not inventive (Art.33(3) PCT). See e. g. example IV in columns 6 and 7 of D4 according to which amounts of between 0.5 and 5% pigments by weight of pulp (dry basis) is considered to be a "low pigment loading".

It would hence have been obvious to the skilled person to apply e. g. 5% (as taught by D4) of the filler disclosed in D1 in a fibrous web thereby arriving at the subject-matter of claims 1, 14, 21 without having to exercise any inventive skill. Any unexpected advantages obtained hereby must be considered as a bonus.

4. Dependent claims 2-13, 15-20, 22-24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step because said features are known from D1, D2, D3, D4 and/or the other documents cited in the international search report.

CLAIMS:

1. A fibrous web containing a filler, which is a substance in a granular form, having a rotationally symmetrical shape and an inner part and a crust part, whereby the density of the inner part is lower than the crust part, characterized in that
- 5
- the density of the inner part is about 10 to 90% of that of the crust part, and
 - the amount of filler used is 3 to 60% of the amount of solids.
2. A fibrous web according to Claim 1, characterized in that the density of the inner part of the filler granule is about 10 to 90%, preferably about 40 to 80% of that
- 10 of the crust part.
3. A fibrous web according to Claim 1, characterized in that the filler granule consists of pigment particles and a binder.
4. A fibrous web according to Claim 1, characterized in that the density of the pigment particles is 1500 to 7000 kg/m³, preferably about 2000 to 3100 kg/m³.
- 15 5. A fibrous web according to any of the preceding claims, characterized in that the density of the filler granule is 400 to 6300 kg/m³, preferably 600 to 2800 kg/m³, whereby the density of the inner part is about 50 to 5700 kg/m³, preferably 700 to 1500 kg/m³, and the density of the crust part is about 600 to 6300 kg/m³, preferably 1700 to 2000 kg/m³.
- 20 6. A fibrous web according to any of the preceding claims, characterized in that the inner part of the filler granule contains rougher pigment particles in relation to the crust part.
7. A fibrous web according to any of the preceding claims, characterized in that the porosity of the inner part of the filler granule is higher than that of the crust part,
- 25 whereby the pore volume of the inner part is 10 to 70% by volume, preferably about 30 to 60% by volume.
8. A fibrous web according to any of the preceding claims, characterized in that the crust part of the filler granule comprises metal silicate, metal sulphate or metal carbonate particles, which are bound to one another by means of a cross-linked
- 30 binder, whereby they form a dense coat that surrounds the inner part.

AMENDED SHEET

9. A fibrous web according to Claim 1, characterized in that the filler particles of the filler granule comprise any inorganic substance, for example, kaolins, ground or precipitated calcium carbonates.
- 5 10. A fibrous web according to any of the preceding claims, characterized in that the particle size (ϕ) of the granulated filler is 1 to 100 μm , preferably 5 to 50 μm .
11. A fibrous web according to any of the preceding claims, characterized in that the substance in the granular form is plastically deformable under the effect of pressure and/or temperature.
- 10 12. A fibrous web according to any of the preceding claims, characterized in containing 3 to 30% by weight of the filler in granular form, whereby the bonding strength of the fibrous web is essentially the same as that of a corresponding fibrous web that contains no filler.
13. A fibrous web according to any of the preceding claims, characterized in containing over 30% by weight of the filler in granular form.
- 15 14. A method for manufacturing a fibrous web, such as a board, paper or non-woven web containing a filler and having a good tensile strength, the method comprising the inclusion of the filler in the fibrous web, the filler being a substance in a granular form and having a rotationally symmetrical shape and an inner part and a crust part, and the density of the inner part being lower than the crust part, characterized in that the density of the inner part is about 10 to 90% of that of the crust part, and the amount of filler used is 3 to 60 % of the amount of solids.
- 20 15. A method according to Claim 14, characterized in that at least 10% by weight of the filler of the fibrous web consists of the granulated filler, whereby its tensile strength is at least 10% better than that of a corresponding fibrous web that contains a mineral pigment that is essentially fully ground.
- 25 16. A method according to Claim 14 or 15, characterized in that a granulated filler is used, the particle size (ϕ) of which is 1 to 100 μm , preferably 5 to 50 μm .
17. A method according to Claims 14 to 16, characterized in that the amount of granulated filler used is 3 to 60% of the web's dry weight.
- 30 18. A method according to Claims 14 to 17, characterized in that the fibrous web containing the filler is coated with a coating composition.

AMENDED SHEET

19. A method according to Claims 14 to 18, characterized in that to obtain a predefined level of opacity, the amount of coating pigment used is 30% smaller than when providing a corresponding level of opacity with a fibrous web that contains powdery mineral pigments.

5 20. A method according to Claims 14 to 19, characterized in that the substance in the granular form is plastically deformable under the effect of pressure and/or temperature.

10 21. A method for improving the fire resistance properties of a fibrous web that contains a filler and has a good tensile strength, whereby the filler is a massive substance in a granular form, having a rotationally symmetrical shape and an inner part and a crust part, and the density of the inner part is lower than the crust part, characterized in that the density of the inner part is about 10 to 90% of that of the crust part, and the amount of filler used is 3 to 60 % of the amount of dry matter.

15 22. A method according to Claim 21, characterized in that the substance in the granular form forms at least 10% by weight of the filler of the fibrous web.

23. A method according to Claim 21, characterized in that the substance in the granular form forms 50 to 100% of the filler of the fibrous web.

20 24. A method according to Claim 21, characterized in that the substance in the granular form is plastically deformable under the effect of pressure and/or temperature.

AMENDED SHEET

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☒ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.